Space Science Seminar
FRIDAY, 2016 JANUARY 22
10:30 a.m.
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Investigations of Plasma and Neutral Gas Dynamics in LEO

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The neutral atmospheric density at LEO altitudes is far larger than that of the plasma with which it co-exists, so the plasma distributions and bulk motion can be strongly influenced by the neutral gas. Examples of this can be found in data from the DE-2, DMSP, and C/NOFS satellites; on small scales these include plasma motion driven by gravity waves, while at larger scales they include storm-induced, heat-flux variations and seasonally-dependent density distributions. The Lower Atmosphere/Ionosphere Coupling Experiment (LAICE) is a nano-satellite mission designed to study these ion-neutral coupling effects. LAICE is the first 6U CubeSat mission to be supported by the NSF, and it is scheduled for deployment from the International Space Station in late 2016. The LAICE satellite carries both *in-situ* and remote-sensing instruments to measure characteristics of the neutral and plasma gasses, with emphasis on their density distributions at altitudes below the ionospheric F-peak. This talk will highlight some key science questions that provide the motivation for LAICE project, describe some of the instruments and the experiment plan, and show lab data that validate instrument performance.

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